

IN THE CLAIMS

1. - 39. (Cancelled)

40. (Previously Presented) A method of manufacturing an electron-emitting device, comprising the steps of:

    providing a substrate on which a first electrode and a second electrode are disposed; and

    arranging a plurality of carbon fibers on the first electrode, so that a height of at least a part of the carbon fibers from the substrate is larger than a height of the second electrode from the substrate,

    wherein each carbon fiber has a plurality of graphenes stacked in a direction different from a direction perpendicular with respect to an axis direction of each carbon fiber.

41. (Previously Presented) The method according to claim 40, wherein the providing step includes processes of:

    arranging a plurality of catalyst particles so as to be connected to the first electrode; and

    growing the plurality of carbon fibers by a reaction between the plurality of catalyst particles and a gas containing carbon.

42. (Previously Presented) The method according to claim 41, wherein the catalyst particles contain a material selected from the group consisting of Pd, Ni, Fe and Co.

43. (Previously Presented) The method according to claim 40, wherein at least one or more of the carbon fibers are formed to have ends apart from a surface of the second electrode.

44. (Previously Presented) A method of manufacturing an electron source having a plurality of electron-emitting devices, each manufactured according to the method of claim 40.

45. (Previously Presented) A method of manufacturing an image forming apparatus comprising a substrate having a third electrode and a phosphor, and an electron source disposed in opposition to and spaced from the substrate, wherein the electron source is manufactured according to the method of claim 44.

46. (Previously Presented) A method of manufacturing an electron-emitting device, comprising the steps of:

providing a substrate on which a first electrode and a second electrode are disposed; and

arranging a plurality of carbon fibers on the first electrode, so that a height of at least a part of the carbon fibers from the substrate is larger than a height of the second electrode from the substrate,

wherein each carbon fiber comprises a plurality of stacked graphenes intersecting with an axis of the carbon fiber.

47. (Previously Presented) The method according to claim 46, wherein the providing step includes processes of:

arranging a plurality of catalyst particles so as to be connected to the first electrode; and

growing the plurality of carbon fibers by a reaction between the plurality of catalyst particles and a gas containing carbon.

48. (Previously Presented) The method according to claim 47, wherein the catalyst particles contain a material selected from the group consisting of Pd, Ni, Fe and Co.

49. (Previously Presented) The method according to claim 46, wherein at least one or more of the carbon fibers are formed to have ends apart from a surface of the second electrode.

50. (Previously Presented) A method of manufacturing an electron source having a plurality of electron-emitting devices, each manufactured according to the method of claim 46.

51. (Previously Presented) A method of manufacturing an image forming apparatus comprising a substrate having a third electrode and a phosphor, and an electron source disposed in opposition to and spaced from the substrate, wherein the electron source is manufactured according to the method of claim 50.

52. (Previously Presented) A method of manufacturing an electron-emitting device, comprising the steps of:

providing a substrate on which a first electrode and a second electrode are disposed; and

arranging a plurality of carbon fibers on the first electrode, so that a height of at least a part of the carbon fibers from the substrate is larger than a height of the second electrode from the substrate,

wherein each carbon fiber has a plurality of graphenes, and the graphenes are stacked along an axis direction of the carbon fiber.

53. (Previously Presented) The method according to claim 52, wherein the providing step includes processes of:

arranging a plurality of catalyst particles so as to be connected to the first electrode; and

growing the plurality of carbon fibers by a reaction between the plurality of catalyst particles and a gas containing carbon.

54. (Previously Presented) The method according to claim 53, wherein the catalyst particles contain a material selected from the group consisting of Pd, Ni, Fe and Co.

55. (Previously Presented) The method according to claim 52, wherein at least one or more of the carbon fibers are formed to have ends apart from a surface of the second electrode.

56. (Previously Presented) A method of manufacturing an electron source having a plurality of electron-emitting devices, each manufactured according to the method of claim 52.

57. (Previously Presented) A method of manufacturing an image forming apparatus comprising a substrate having a third electrode and a phosphor, and an electron source disposed in opposition to and spaced from the substrate, wherein the electron source is manufactured according to the method of claim 56.

58. (Previously Presented) A method of manufacturing an electron-emitting device, comprising the steps of:

providing a first electrode disposed on a substrate;

arranging a second electrode on the substrate; and

arranging a plurality of carbon fibers on the first electrode, so that a height of at least a part of the carbon fibers from the substrate is larger than a height of the second electrode from the substrate,

wherein each carbon fiber comprises a plurality of graphenes which are stacked so as not to be parallel to an axis direction of the fiber.

59. (Previously Presented) A method of manufacturing an electron source having a plurality of electron-emitting devices, each manufactured according to the method of claim 58.

60. (Previously Presented) A method of manufacturing an image forming apparatus comprising a substrate having a third electrode and a phosphor, and an electron source disposed in opposition to and spaced from the substrate, wherein the electron source is manufactured according to the method of claim 59.

61. (New) A method of manufacturing an electron-emitting device to be

arranged in opposition to an anode electrode, the electron-emitting device having on a surface of a substrate a cathode electrode, a gate electrode, and a fiber containing carbon as a main ingredient arranged on the cathode electrode, the method comprising steps of:

(a) preparing the substrate being insulating and having on the surface thereof, the cathode electrode having a catalyst on a surface thereof, and the gate electrode arranged separately from the cathode electrode; and

(b) forming, on the cathode electrode, by decomposing hydrocarbon gas according to a heating process using the catalyst, as the fiber containing carbon as a main ingredient, a fiber having a plurality of graphenes that are not parallel to an axis direction of the fiber and being stacked in the axis direction of the fiber, so that the fiber has a portion which is positioned at a shorter distance from the anode electrode rather than is a distance between the anode electrode and the gate electrode.

62. (New) A method of manufacturing an image display apparatus comprising a plurality of electron-emitting devices and phosphor, wherein each of the electron-emitting devices is manufactured by the method according to claim 61.